

### Abstract

Nanostructured materials and processes for the preparation of these nanostructured materials in high phase purities using cavitation is disclosed. The method 5 preferably comprises mixing a metal containing solution with a precipitating agent and passing the mixture into a cavitation chamber. The chamber consists of a first element to produce cavitation bubbles, and a second element that creates a pressure zone sufficient to collapse the bubbles. The process is useful for the preparation of catalysts and materials for piezoelectrics and superconductors.

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